BEFORE THE DEPARTMENT OF
NATURAL RESOURCES AND CONSERVATION
OF THE STATE OF MONTANA

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APPLICATION FOR BENEFICIAL WATER USE PERMIT NO. 76M – 30149310) BY MISSOULA COUNTY PUBLIC) SCHOOLS (Sentinel High School))	**PRELIMINARY DETERMINATION TO GRANT PERMIT**

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On December 21, 2020, Missoula County Public Schools (Sentinel High School-Applicant) submitted Application for Beneficial Water Use Permit No. 76M-30149310 to the Missoula Water Resources Office of the Department of Natural Resources and Conservation (Department or DNRC) for 650 gallons per minute (GPM) or 1.45 CFS and 306 acre-feet (AF) for the beneficial use of geothermal cooling. The Department published receipt of the Application on its website. The Application was determined to be correct and complete as of June 15th, 2021. The Department met with the Applicants consultant WGM Group, Julie Merritt on July 12th, 2021, to discuss the City of Missoula's water rights within the zone of influence. An Environmental Assessment for this Application was completed on October 13, 2021.

INFORMATION

The Department considered the following information submitted by the Applicant, which is contained in the administrative record.

Application as filed:

- Application for Beneficial Water Use Permit, Form 600
- Attachments

  Maps: Aerial maps depicting place of use, point of diversion
  Supply well line diagram
- Aquifer Testing Report - Form 633
- Variance request from Applicant for the 72-hour duration test dated January 24, 2021, and letter of approval from DNRC dated February 7, 2021

Information Received after Application Filed

- Email from Julie Merritt of WGM Group, regarding explanation of the City of Missoula's municipal wells as it pertains to the legal availability analysis, dated July 12, 2021

Information within the Department's Possession/Knowledge

- Aquifer Test Report and Depletion Report from Department Groundwater Hydrologist, Attila Folnagy, dated June 17, 2021

The Department has fully reviewed and considered the evidence and argument submitted in this Application and preliminarily determines the following pursuant to the Montana Water Use Act (Title 85, chapter 2, part 3, MCA).

PROPOSED APPROPRIATION

FINDINGS OF FACT

1. Applicant proposes to divert water at a maximum rate of 1.45 CFS up to a diverted volume of 306 AF from April 1 to October 30 annually for geothermal cooling. The proposed diversion (extraction well) is a 116-foot-deep groundwater well fitted with a submersible pump, located in the NENENW of Section 33, T13N, R19W, Missoula County. The injection well is 148-feet deep and located 260-feet southwest from the extraction well. The extraction and injection wells and the place of use are located at Sentinel High School in Missoula. Building renovation and upgrades to the high school include installing a geothermal cooling system.

2. The extraction well shares the same point of diversion with an existing statement of claim for irrigation, number 76M-215680. Statement of claim 76M-215680 has a claimed flow rate of 400 GPM. The combined diverted flow rate from Statement of Claim 76M-215680 and pending permit application 76M-30149310 is 1.45 CFS. A pressure sensor will modulate a three-way valve to constrict flow to the irrigation lines of the system ensuring that the historic flow rate of 400 GPM is not exceeded for the irrigation use from the well. The system activates the well pump for three different modes: cooling-only mode, irrigation-only mode, or cooling and irrigation mode.

3. The wells are approximately 1.5 miles and 2.4 miles from the Clark Fork River and Bitterroot River, respectively. The point of diversion and place of use are located in the Clark Fork River basin (76M) which is an area that is not subject to any water right basin closures or controlled groundwater restrictions.

4. There is no consumptive use associated with the proposed appropriation. This application is for a non-consumptive water right for geothermal cooling. The injection of water back into the aquifer after cooling use results in depletions and accretions that cancel each other, resulting in no net effect to the groundwater aquifer or surface water flows in the Clark Fork and Bitterroot rivers.

5. The Applicant provided a plan to measure water using an in-line flow meter which will collect and store flow rate and volume data for water measurement reporting requirements. Applicant will be required to measure the monthly flow rates and volumes of water diverted for geothermal cooling as a condition of permit issuance and will report these figures to DNRC on a yearly basis. The Applicant has agreed to measure the flow rate and volume of water diverted and report these figures to DNRC on an annual basis. The following condition applies:

THE APPROPRIATOR SHALL INSTALL A DEPARTMENT APPROVED IN-LINE FLOW METER AT A POINT IN THE DELIVERY LINE APPROVED BY THE DEPARTMENT. WATER MUST NOT BE DIVERTED UNTIL THE REQUIRED MEASURING DEVICE IS IN PLACE AND OPERATING. ON A FORM PROVIDED BY THE DEPARTMENT, THE APPROPRIATOR SHALL KEEP A WRITTEN MONTHLY RECORD OF THE FLOW RATE AND VOLUME OF ALL WATER DIVERTED, INCLUDING THE PERIOD OF TIME. RECORDS SHALL BE SUBMITTED BY JANUARY 31 OF EACH YEAR AND UPON REQUEST AT OTHER TIMES DURING THE YEAR UNTIL THE BENEFICIAL WATER USE PERMIT IS PERFECTED AND THE DEPARTMENT RECEIVES A PROJECT COMPLETION NOTICE. FAILURE TO SUBMIT REPORTS MAY BE CAUSE FOR REVOCATION OF A PERMIT OR CHANGE. THE RECORDS MUST BE SENT TO THE WATER RESOURCES REGIONAL OFFICE. THE APPROPRIATOR SHALL MAINTAIN THE MEASURING DEVICE SO IT ALWAYS OPERATES PROPERLY AND MEASURES FLOW RATE AND VOLUME ACCURATELY.


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SWSW
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SESW
SWSE
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340200
Injection Well
Extraction Well
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Map Created: 9/21/2021
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGH, and the GIS User Community

§ 85-2-311, MCA, BENEFICIAL WATER USE PERMIT CRITERIA

GENERAL CONCLUSIONS OF LAW

6. The Montana Constitution expressly recognizes in relevant part that:

> (1) All existing rights to the use of any waters for any useful or beneficial purpose are hereby recognized and confirmed.
> (2) The use of all water that is now or may hereafter be appropriated for sale, rent, distribution, or other beneficial use . . . shall be held to be a public use.
> (3) All surface, underground, flood, and atmospheric waters within the boundaries of the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided by law.

Mont. Const. Art. IX, §3. While the Montana Constitution recognizes the need to protect senior appropriators, it also recognizes a policy to promote the development and use of the waters of the state by the public. This policy is further expressly recognized in the water policy adopted by the Legislature codified at § 85-2-102, MCA, which states in relevant part:

> (1) Pursuant to Article IX of the Montana constitution, the legislature declares that any use of water is a public use and that the waters within the state are the property of the state for the use of its people and are subject to appropriation for beneficial uses as provided in this chapter. . . .
> (3) It is the policy of this state and a purpose of this chapter to encourage the wise use of the state's water resources by making them available for appropriation consistent with this chapter and to provide for the wise utilization, development, and conservation of the waters of the state for the maximum benefit of its people with the least possible degradation of the natural aquatic ecosystems. In pursuit of this policy, the state encourages the development of facilities that store and conserve waters for beneficial use, for the maximization of the use of those waters in Montana . . .

7. Pursuant to § 85-2-302(1), MCA, except as provided in §§ 85-2-306 and 85-2-369, MCA, a person may not appropriate water or commence construction of diversion, impoundment, withdrawal, or related distribution works except by applying for and receiving a permit from the Department. See § 85-2-102(1), MCA. An Applicant in a beneficial water use permit proceeding must affirmatively prove all of the applicable criteria in § 85-2-311, MCA. Section § 85-2-311(1) states in relevant part:

… the department shall issue a permit if the Applicant proves by a preponderance of evidence that the following criteria are met:

(a) (i) there is water physically available at the proposed point of diversion in the amount that the Applicant seeks to appropriate; and

(ii) water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:

(A) identification of physical water availability;

(B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and

(C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.

(b) the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. In this subsection (1)(b), adverse effect must be determined based on a consideration of an Applicant's plan for the exercise of the permit that demonstrates that the Applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied;

(c) the proposed means of diversion, construction, and operation of the appropriation works are adequate;

(d) the proposed use of water is a beneficial use;

(e) the Applicant has a possessory interest or the written consent of the person with the possessory interest in the property where the water is to be put to beneficial use, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit;

(f) the water quality of a prior appropriator will not be adversely affected;

(g) the proposed use will be substantially in accordance with the classification of water set for the source of supply pursuant to 75-5-301(1); and

(h) the ability of a discharge permit holder to satisfy effluent limitations of a permit issued in accordance with Title 75, chapter 5, part 4, will not be adversely affected.

(2) The Applicant is required to prove that the criteria in subsections (1)(f) through (1)(h) have been met only if a valid objection is filed. A valid objection must contain substantial credible information establishing to the satisfaction of the department that the criteria in subsection (1)(f), (1)(g), or (1)(h), as applicable, may not be met. For the criteria set forth in subsection (1)(g), only the department of environmental quality or a local water quality district established under Title 7, chapter 13, part 45, may file a valid objection.

To meet the preponderance of evidence standard, "the Applicant, in addition to other evidence demonstrating that the criteria of subsection (1) have been met, shall submit hydrologic or other evidence, including but not limited to water supply data, field reports, and other information developed by the Applicant, the department, the U.S. geological survey, or the U.S. natural resources conservation service and other specific field studies." § 85-2-311(5), MCA (emphasis added). The determination of whether an application has satisfied the § 85-2-311, MCA criteria is committed to the discretion of the Department. Bostwick Properties, Inc. v. Montana Dept. of Natural Resources and Conservation, 2009 MT 181, ¶ 21. The Department is required grant a permit only if the § 85-2-311, MCA, criteria are proven by the Applicant by a preponderance of the evidence. Id. A preponderance of evidence is "more probably than not." Hohenlohe v. DNRC, 2010 MT 203, ¶¶33, 35.

8. Pursuant to § 85-2-312, MCA, the Department may condition permits as it deems necessary to meet the statutory criteria:

> (1) (a) The department may issue a permit for less than the amount of water requested, but may not issue a permit for more water than is requested or than can be beneficially used without waste for the purpose stated in the application. The department may require modification of plans and specifications for the appropriation or related diversion or construction. The department may issue a permit subject to terms, conditions, restrictions, and limitations it considers necessary to satisfy the criteria listed in 85-2-311 and subject to subsection (1)(b), and it may issue temporary or seasonal permits. A permit must be issued subject to existing rights and any final determination of those rights made under this chapter.

E.g., Montana Power Co. v. Carey (1984), 211 Mont. 91, 96, 685 P.2d 336, 339 (requirement to grant applications as applied for, would result in, "uncontrolled development of a valuable natural resource" which "contradicts the spirit and purpose underlying the Water Use Act."); see also, *In the Matter of Application for Beneficial Water Use Permit No. 65779-76M by Barbara L. Sowers* (DNRC Final Order 1988)(conditions in stipulations may be included if it further compliance with statutory criteria); *In the Matter of Application for Beneficial Water Use Permit No. 42M-80600 and Application for Change of Appropriation Water Right No. 42M-036242 by Donald H. Wyrick* (DNRC Final Order 1994); Admin. R. Mont. (ARM) 36.12.207.

9. The Montana Supreme Court further recognized in Matter of Beneficial Water Use Permit Numbers 66459-76L, Ciotti: 64988-G76L, Starner (1996), 278 Mont. 50, 60-61, 923 P.2d 1073, 1079, 1080, *superseded by legislation on another issue*:

> Nothing in that section [85-2-313], however, relieves an Applicant of his burden to meet the statutory requirements of § 85-2-311, MCA, before DNRC may issue that provisional permit. Instead of resolving doubts in favor of appropriation, the Montana Water Use Act requires an Applicant to make explicit statutory showings that there are unappropriated waters in the source of supply, that the water rights of a prior appropriator will not be adversely affected, and that the proposed use will not unreasonably interfere with a planned use for which water has been reserved.

See also, Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order* (2011). The Supreme Court likewise explained that:

> .... unambiguous language of the legislature promotes the understanding that the Water Use Act was designed to protect senior water rights holders from encroachment by junior appropriators adversely affecting those senior rights.

Montana Power Co., 211 Mont. at 97-98, 685 P.2d at 340; see also Mont. Const. art. IX §3(1).

10. An appropriation, diversion, impoundment, use, restraint, or attempted appropriation, diversion, impoundment, use, or restraint contrary to the provisions of § 85-2-311, MCA is invalid. An officer, agent, agency, or employee of the state may not knowingly permit, aid, or assist in any manner an unauthorized appropriation, diversion, impoundment, use, or other restraint. A person or corporation may not, directly or indirectly, personally or through an agent, officer, or employee, attempt to appropriate, divert, impound, use, or otherwise restrain or control waters within the boundaries of this state except in accordance with this § 85-2-311, MCA. § 85-2-311(6), MCA.

11. The Department may take notice of judicially cognizable facts and generally recognized technical or scientific facts within the Department's specialized knowledge, as specifically identified in this document. ARM 36.12.221(4).

Physical Availability

FINDINGS OF FACT

12. Applicant requested and received a variance from the 72-hour aquifer testing requirement (ARM 36.12.121) dated February 7, 2020. The variance was granted for this application pursuant to the March 10, 2010, memo from James Heffner, Hydrogeologist for the Water Management Bureau, titled "Variance – Missoula Valley Geothermal/Heat Exchange Wells". This memo allows the Applicant to perform a limited duration test to address short-term physical availability and adequacy of diversion while forgoing the more rigorous aquifer testing typically required if the aquifer properties provided in the memo are used in evaluation of the criteria (T = 50,000 ft^2/day, S_y = 0.10). The Applicant conducted an 8-hour drawdown yield test and submitted results of the aquifer tests on DNRC's Aquifer Test Data Form (Form 633).

13. Short term physical availability was evaluated by the Department using Applicant supplied data from 8-hour test completed for the extraction well at an average pumping rate of 1.45 CFS. The maximum drawdown was 1.92 feet from a static water level of 49.2 feet below top of casing, leaving 64.9 feet above the bottom of the well. The 8-hour drawdown test adequately demonstrates physical availability of water column for the well.

14. Physical groundwater availability was calculated by Department Hydrogeologist Attila Folnagy who presented his findings in a June 17, 2021, Aquifer Test Report. Using aquifer properties established in James Heffner's 2010 memo, a constant pumping rate of 325.1 GPM (equivalent to the proposed geothermal volume diverted over the requested 213-day period of use) for the extraction well and injection well (negative rates for the injection well) the Department modeled the zone of influence to the 0.01-foot drawdown contour. The calculation for groundwater flux through the zone of influence is 4,022 AF/year. The Applicant requested 306 AF/yr of non-consumed volume.

CONCLUSIONS OF LAW

15. Pursuant to § 85-2-311(1)(a)(i), MCA, an Applicant must prove by a preponderance of the evidence that "there is water physically available at the proposed point of diversion in the amount that the Applicant seeks to appropriate."

16. It is the Applicant's burden to produce the required evidence. *In the Matter of Application for Beneficial Water Use Permit No. 27665-41I by Anson* (DNRC Final Order 1987)(Applicant produced no flow measurements or any other information to show the availability of water; permit denied); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.,* (DNRC Final Order 2005).

17. An Applicant must prove that at least in some years there is water physically available at the point of diversion in the amount the Applicant seeks to appropriate. *In the Matter of Application for Beneficial Water Use Permit No. 72662s76G by John Fee and Don Carlson* (DNRC Final Order 1990); *In the Matter of Application for Beneficial Water Use Permit No. 85184s76F by Wills Cattle Co. and Ed McLean* (DNRC Final Order 1994).

18. The Applicant has proven that water is physically available at the proposed point of diversion in the amount Applicant seeks to appropriate. § 85-2-311(1)(a)(i), MCA. (FOF Nos. 12-14)

Legal Availability:

FINDINGS OF FACT

19. Within the zone of influence, (as defined in Finding of Fact 14), there are a total of 14 groundwater rights on record with the Department listing a total annual appropriation of 9,157.9 AF. Subtracting the legal demands of 9,157.9 AF from the calculated groundwater flux 4,022.0 AF leaves -5,135.9 acre-feet of groundwater. See table below.

Table #1 – List of legal demands within the zone of influence

Water Right#	Owner	Water Right Type	Volume Diverted
76M 56731 00	B.&E. L. HOLLIBAUGH	GW CERTIFICATE	2.3
76M 57679 00	BEACH TRANSP. CO	GW CERTIFICATE	1.5
76M 57749 00	COWLES MONTANA M.C.	GW CERTIFICATE	1.5
76M 1571 00	D. L&R. T WUTTKE	GW CERTIFICATE	1
76M 30002177	KEVIN P KING	EXEMPT RIGHT	1.6
76M 30138910	KEVIN P KING	STATEMENT OF CLAIM	1
76M 215680 00	MISSOULA COUNTY P.S.	STATEMENT OF CLAIM	62.5
76M 99725 00	MISSOULA, CITY OF	PROVISIONAL PERMIT	12
76M 40145 00	MISSOULA, CITY OF	STATEMENT OF CLAIM	1,937.80
76M 40159 00	MISSOULA, CITY OF	STATEMENT OF CLAIM	1,937.80
76M 53867 00	MISSOULA, CITY OF	PROVISIONAL PERMIT	4,838.30
76M 30041570	MT ACE HARDWARE	GW CERTIFICATE	1.6
76M 107858 00	TABISH BRO. DIST. INC	STATEMENT OF CLAIM	8
76M 151826 00	U. OF MONTANA	STATEMENT OF CLAIM	351

20. The Department's analysis shows that groundwater is not legally available within the zone of influence from pumping the proposed extraction well. The proposed appropriation of groundwater for geothermal cooling can be considered legally available because it is non-consumptive, water diverted from the source aquifer is returned to the source aquifer without delay, and therefore the consumed volume associated with this proposed appropriation is 0 AF per year, and thus no additional demand on the source is being created.

21. As the depletions from pumping and accretions from injection are equal and there is no net consumptive use, there will be no effect to surface water flows in the Clark Fork River or the Bitterroot River, approximately 1.5 miles and 2.4 miles from the location of the well. Due to the lack of surface water depletions in the Clark Fork River and Bitterroot River, a legal availability analysis for surface water is not required.

CONCLUSIONS OF LAW

22. Pursuant to § 85-2-311(1)(a), MCA, an Applicant must prove by a preponderance of the evidence that:

(ii) water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the department and other evidence provided to the department. Legal availability is determined using an analysis involving the following factors:

(A) identification of physical water availability;

(B) identification of existing legal demands on the source of supply throughout the area of potential impact by the proposed use; and

(C) analysis of the evidence on physical water availability and the existing legal demands, including but not limited to a comparison of the physical water supply at the proposed point of diversion with the existing legal demands on the supply of water.

E.g., ARM 36.12.101 and 36.12.120; Montana Power Co., 211 Mont. 91, 685 P.2d 336 (Permit granted to include only early irrigation season because no water legally available in late irrigation season); *In the Matter of Application for Beneficial Water Use Permit No. 81705-g76F by Hanson* (DNRC Final Order 1992).

23. It is the Applicant's burden to present evidence to prove water can be reasonably considered legally available. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (the legislature set out the criteria (§ 85-2-311, MCA) and placed the burden of proof squarely on the Applicant. The Supreme Court has instructed that those burdens are exacting.); see also Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston (1991), 249 Mont. 425, 816 P.2d 1054 (burden of proof on Applicant in a change proceeding to prove required criteria); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005))(it is the Applicant's burden to produce the required evidence.); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions, LLC* (DNRC Final Order 2007)(permit denied for failure to prove legal availability); see also ARM 36.12.1705.

24. Pursuant to Montana Trout Unlimited v. DNRC, 2006 MT 72, 331 Mont. 483, 133 P.3d 224, the Department recognizes the connectivity between surface water and ground water and the

effect of pre-stream capture on surface water. E.g., Wesmont Developers v. DNRC, CDV-2009-823, Montana First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 7-8; *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006)(mitigation of depletion required), *affirmed*, Faust v. DNRC et al., Cause No. CDV-2006-886, Montana First Judicial District (2008); see also Robert and Marlene Takle v. DNRC *et al.*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994) (affirming DNRC denial of Applications for Beneficial Water Use Permit Nos. 76691-76H, 72842-76H, 76692-76H and 76070-76H; underground tributary flow cannot be taken to the detriment of other appropriators including surface appropriators and ground water appropriators must prove unappropriated surface water, *citing* Smith v. Duff, 39 Mont. 382, 102 P. 984 (1909), and Perkins v. Kramer, 148 Mont. 355, 423 P.2d 587 (1966)); *In the Matter of Beneficial Water Use Permit No. 80175-s76H by Tintzman* (DNRC Final Order 1993)(prior appropriators on a stream gain right to natural flows of all tributaries in so far as may be necessary to afford the amount of water to which they are entitled, *citing* Loyning v. Rankin (1946), 118 Mont. 235, 165 P.2d 1006; Granite Ditch Co. v. Anderson (1983), 204 Mont. 10, 662 P.2d 1312; Beaverhead Canal Co. v. Dillon Electric Light & Power Co. (1906), 34 Mont. 135, 85 P. 880); *In the Matter of Beneficial Water Use Permit No.* 63997-*42M by Joseph F. Crisafulli* (DNRC Final Order 1990)(since there is a relationship between surface flows and the ground water source proposed for appropriation, and since diversion by Applicant's well appears to influence surface flows, the ranking of the proposed appropriation in priority must be as against all rights to surface water as well as against all groundwater rights in the drainage.) Because the Applicant bears the burden of proof as to legal availability, the Applicant must prove that the proposed appropriation will not result in prestream capture or induced infiltration and cannot limit its analysis to ground water. § 85-2-311(a)(ii), MCA. Absent such proof, the Applicant must analyze the legal availability of surface water in light of the proposed ground water appropriation. *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 By Utility Solutions LLC* (DNRC Final Order 2007) (permit denied); *In the Matter of Application for Beneficial Water Use Permit No. 76H-*

30028713 by Patricia Skergan and Jim Helmer (DNRC Final Order 2009); Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 ; Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12.

25. Where a proposed ground water appropriation depletes surface water, Applicant must prove legal availability of amount of depletion of surface water throughout the period of diversion either through a mitigation /aquifer recharge plan to offset depletions or by analysis of the legal demands on, and availability of, water in the surface water source. Robert and Marlene Takle v. DNRC *et al.*, Cause No. DV-92-323, Montana Fourth Judicial District for Ravalli County, *Opinion and Order* (June 23, 1994); *In the Matter of Beneficial Water Use Permit Nos. 41H 30012025 and 41H 30013629 by Utility Solutions LLC* (DNRC Final Order 2006)(permits granted), *affirmed*, Faust v. DNRC et al., Cause No. CDV-2006-886, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit 41H 30019215 by Utility Solutions LLC* (DNRC Final Order 2007)(permit granted), *affirmed*, Montana River Action Network et al. v. DNRC et al., Cause No. CDV-2007-602, Montana First Judicial District (2008); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30023457 by Utility Solutions LLC* (DNRC Final Order 2007) (permit denied for failure to analyze legal availability outside of irrigation season (where mitigation applied)); *In the Matter of Application for Beneficial Water Use Permit No. 41H 30026244 by Utility Solutions LLC* (DNRC Final Order 2008); *In the Matter of Application for Beneficial Water Use Permit No. 76H-30028713 by Patricia Skergan and Jim Helmer* (DNRC Final Order 2009)(permit denied in part for failure to analyze legal availability for surface water depletion); Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 5 (Court affirmed denial of permit in part for failure to prove legal availability of stream depletion to slough and Beaverhead River); Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pgs. 11-12 ("DNRC properly determined that Wesmont cannot be authorized to divert, either directly or indirectly, 205.09 acre-feet from the Bitterroot River without establishing that the water does not belong to a senior appropriator"; Applicant

failed to analyze legal availability of surface water where projected surface water depletion from groundwater pumping); *In the Matter of Application for Beneficial Water Use Permit No. 76D-30045578 by GBCI Other Real Estate, LLC* (DNRC Final Order 2011) (in an open basin, Applicant for a new water right can show legal availability by using a mitigation/aquifer recharge plan or by showing that any depletion to surface water by groundwater pumping will not take water already appropriated; development next to Lake Koocanusa will not take previously appropriated water). Applicant may use water right claims of potentially affected appropriators as a substitute for "historic beneficial use" in analyzing legal availability of surface water under § 85-2-360(5), MCA. Royston, supra.

26. Applicant has proven by a preponderance of the evidence that water can reasonably be considered legally available during the period in which the Applicant seeks to appropriate, in the amount requested, based on the records of the Department and other evidence provided to the Department.§ 85-2-311(1)(a)(ii), MCA. (FOF Nos. 19-21)

Adverse Effect

FINDINGS OF FACT

27. The Applicant will operate the groundwater cooling exchange system during times of water shortage the same as in times of normal supply as the proposed appropriation results in no depletion to either surface or groundwater sources; however, they have indicated that cessation of diversion could occur if required. The use of groundwater for geothermal cooling will not worsen aquifer conditions in times of shortage because groundwater is returned to the source aquifer at the same rate it is diverted with the injection of water offsetting the effects of pumping.

28. Using the Theis (1935) solution with the aquifer properties established in James Heffner's 2010 memo, Department modeling shows that after five years of pumping at a constant rate of 325.1 GPM for the 213 day period of use, the 1-foot drawdown contour would occur within 2 feet of the extraction well. There are no water rights that are predicted to experience drawdown greater than 1-foot.

29. To ensure that existing statement of claim number 76M-215680-00, which shares the same point of diversion, will not be expanded as a result of the proposed appropriation, the Applicant installed a three-way valve which can control the flow rate diverted to the irrigation system, which is limited to the claimed 400 GPM. When the system is being used for both geothermal cooling and irrigation, flows diverted in excess of 400 GPM are directed to the injection well.

30. Surface water users will not be adversely affected as the extraction and injection wells are in close proximity (260 feet), groundwater is returned to the same aquifer from which it is extracted, the use is non-consumptive, and there is sufficient distance to the surface water to allow for extraction and injection effects to cancel out (1.5 miles and 2.4 miles).

31. The extraction well is equipped with a flow meter that will record monthly diversions. The Applicant will report monthly water usage to DNRC annually.

CONCLUSIONS OF LAW

32. Pursuant to § 85-2-311(1)(b), MCA, the Applicant bears the affirmative burden of proving by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. Analysis of adverse effect must be determined based on a consideration of an Applicant's plan for the exercise of the permit that demonstrates that the Applicant's use of the water will be controlled so the water right of a prior appropriator will be satisfied. See Montana Power Co. (1984), 211 Mont. 91, 685 P.2d 336 (purpose of the Water Use Act is to protect senior appropriators from encroachment by junior users); Bostwick Properties, Inc. ¶ 21.

33. An Applicant must analyze the full area of potential impact under the § 85-2-311, MCA criteria. *In the Matter of Beneficial Water Use Permit No. 76N-30010429 by Thompson River Lumber Company* (DNRC Final Order 2006). While § 85-2-361, MCA, limits the boundaries expressly required for compliance with the hydrogeologic assessment requirement, an Applicant is required to analyze the full area of potential impact for adverse effect in addition to the requirement of a hydrogeologic assessment. Id. ARM 36.12.120(8).

34. Applicant must prove that no prior appropriator will be adversely affected, not just the objectors. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 4.

35. In analyzing adverse effect to other appropriators, an Applicant may use the water rights claims of potentially affected appropriators as evidence of their "historic beneficial use." See Matter of Application for Change of Appropriation Water Rights Nos. 101960-41S and 101967-41S by Royston (1991), 249 Mont. 425, 816 P.2d 1054.

36. It is the Applicant's burden to produce the required evidence. E.g., Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 7 (legislature has placed the burden of proof squarely on the Applicant); *In the Matter of Application to Change Water Right No. 41H 1223599 by MGRR #1, LLC.*, (DNRC Final Order 2005). (DNRC Final Order 2005). The Department is required to grant a permit only if the § 85-2-311, MCA, criteria are proven by the Applicant by a preponderance of the evidence. Bostwick Properties, Inc. ¶ 21.

37. Section 85-2-311 (1)(b) of the Water Use Act does not contemplate a de minimis level of adverse effect on prior appropriators. Wesmont Developers v. DNRC, CDV-2009-823, First Judicial District Court, *Memorandum and Order*, (2011) Pg. 8.

38. The Applicant has proven by a preponderance of the evidence that the water rights of a prior appropriator under an existing water right, a certificate, a permit, or a state water reservation will not be adversely affected. § 85-2-311(1)(b), MCA. (FOF Nos. 27-31)

Adequate Diversion

FINDINGS OF FACT

39. Groundwater will be pumped from the production well which has a 12-inch casing and is 116-feet deep. The well is equipped with an 8JHE3450 RPM submersible pump capable of pumping 1.45 CFS. The Applicant submitted pump specifications and a pump curve. The injection well is 148-feet deep with a 10-inch casing.

40. The Sentinel High School building has an automated control system. When there is a call for water, the pump is activated. The pumping rate is dependent upon a thermostat setting for the chilled water system and whether the irrigation system is operating simultaneously. The maximum proposed flow rate is 1.45 CFS, which can accommodate both geothermal use and irrigation use. When the system is in cooling and irrigation mode, water will pass through a heat exchanger and be routed through the chilled water line to a three-way valve. A pressure sensor will modulate the three-way valve to constrict flow to the irrigation lines of the system ensuring that the historic flow rate of 400 GPM is not exceed. The three-way valve will then direct the remaining water in the chilled water system line to the injection well.

41. An in-line flow meter is installed on the chilled water system supply line above the point of diversion of the well in the vault. Monthly records of flow rate and diverted volume will be recorded by the Applicant ad submitted to DNRC annually until project completion has been approved.

42. The heat exchange system is designed as an open-loop system. All water that is extracted and piped through the heat exchange system is returned to the aquifer via the injection well. Hardware such as piping, valves, associated equipment, and accessories have been sized to accommodate the peak flow of 1.45 CFS. The overall efficiency of the system is expected to be 100%.

CONCLUSIONS OF LAW

43. Pursuant to § 85-2-311(1)(c), MCA, an Applicant must demonstrate that the proposed means of diversion, construction, and operation of the appropriation works are adequate.

44. The adequate means of diversion statutory test merely codifies and encapsulates the case law notion of appropriation to the effect that the means of diversion must be reasonably effective, i.e., must not result in a waste of the resource. *In the Matter of Application for Beneficial Water Use Permit No. 33983s41Q by Hoyt* (DNRC Final Order 1981); § 85-2-312(1)(a), MCA.

45. Applicant has proven by a preponderance of the evidence that the proposed means of diversion, construction, and operation of the appropriation works are adequate for the proposed beneficial use. § 85-2-311(1)(c), MCA (FOF Nos. 39-42).

Beneficial Use

FINDINGS OF FACT

46. The Applicant proposes to use groundwater from April 1 through October 30 (213 days) annually for the purpose of geothermal cooling.

47. The Applicant proposes to divert groundwater from an extraction well at a variable rate, not to exceed a maximum flow rate of 1.45 CFS. Total annual diverted volume will not exceed 306 AF per year. The system was designed by JM Engineering PLLC and this amount of water was determined to be necessary to run the heat exchange operations during the period of use for cooling of the school; actual usage will vary dependent on weather, building occupancy, and internal activities. The volume requested was based on maximum use throughout the period of diversion (650 gal/min × 720 min/day × 213 days × 1 AF/325,851 gal ≈ 306 AF).

CONCLUSIONS OF LAW

48. #Under § 85-2-311(1)(d), MCA, an Applicant must prove by a preponderance of the evidence the proposed use is a beneficial use.

49. #An appropriator may appropriate water only for a beneficial use. See also, § 85-2-301 MCA. It is a fundamental premise of Montana water law that beneficial use is the basis, measure, and limit of the use. E.g., McDonald, supra; Toohey v. Campbell (1900), 24 Mont. 13, 60 P. 396. The amount of water under a water right is limited to the amount of water necessary to sustain the beneficial use. E.g., Bitterroot River Protective Association v. Siebel, *Order on Petition for Judicial Review*, Cause No. BDV-2002-519, Montana First Judicial District Court, Lewis and Clark County (2003), *affirmed on other grounds*, 2005 MT 60, 326 Mont. 241, 108 P.3d 518; *In The Matter Of Application For Beneficial Water Use Permit No. 43C 30007297 by Dee Deaterly* (DNRC Final Order), *affirmed other grounds*, Dee Deaterly v. DNRC *et al*, Cause

No. 2007-186, Montana First Judicial District, *Order Nunc Pro Tunc on Petition for Judicial Review* (2009); Worden v. Alexander (1939), 108 Mont. 208, 90 P.2d 160; Allen v. Petrick (1924), 69 Mont. 373, 222 P. 451; *In the Matter of Application for Beneficial Water Use Permit No. 41S-105823 by French* (DNRC Final Order 2000).

50. Amount of water to be diverted must be shown precisely. Sitz Ranch v. DNRC, DV-10-13390, Fifth Judicial District Court, *Order Affirming DNRC Decision*, (2011) Pg. 3 (citing BRPA v. Siebel, 2005 MT 60, and rejecting Applicant's argument that it be allowed to appropriate 800 acre-feet when a typical year would require 200-300 acre-feet).

51. Applicant proposes to use water for geothermal cooling which is a recognized beneficial use. § 85-2-102(5), MCA. Applicant has proven by a preponderance of the evidence geothermal cooling is a beneficial use and that 306 AF of diverted volume and 1.45 CFS of water requested is the amount needed to sustain the beneficial use. § 85-2-311(1)(d), MCA. (FOF Nos. 46-47)

Possessory Interest

FINDINGS OF FACT

52. The Applicant signed the application form affirming the Applicant has possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use.

CONCLUSIONS OF LAW

53. Pursuant to § 85-2-311(1)(e), MCA, an Applicant must prove by a preponderance of the evidence that it has a possessory interest or the written consent of the person with the possessory interest in the property where the water is to be put to beneficial use, or if the proposed use has a point of diversion, conveyance, or place of use on national forest system lands, the Applicant has any written special use authorization required by federal law to occupy, use, or traverse national forest system lands for the purpose of diversion, impoundment, storage, transportation, withdrawal, use, or distribution of water under the permit.

54. Pursuant to ARM 36.12.1802:

(1) An Applicant or a representative shall sign the application affidavit to affirm the following:
(a) the statements on the application and all information submitted with the application are true and correct and
(b) except in cases of an instream flow application, or where the application is for sale, rental, distribution, or is a municipal use, or in any other context in which water is being supplied to another and it is clear that the ultimate user will not accept the supply without consenting to the use of water on the user's place of use, the Applicant has possessory interest in the property where the water is to be put to beneficial use or has the written consent of the person having the possessory interest.
(2) If a representative of the Applicant signs the application form affidavit, the representative shall state the relationship of the representative to the Applicant on the form, such as president of the corporation, and provide documentation that establishes the authority of the representative to sign the application, such as a copy of a power of attorney.
(3) The department may require a copy of the written consent of the person having the possessory interest.

55. The Applicant has proven by a preponderance of the evidence that it has a possessory interest, or the written consent of the person with the possessory interest, in the property where the water is to be put to beneficial use. § 85-2-311(1)(e), MCA. (FOF No. 52)

PRELIMINARY DETERMINATION

Subject to the terms, analysis, and conditions in this Order, the Department preliminarily determines that this Application for Beneficial Water Use Permit No. 76M-30149310 should be GRANTED.

The Department determines the Applicant may divert groundwater for geothermal cooling by means of a 116-foot-deep extraction well. The well will divert up to 1.45 CFS up to a maximum diverted volume of 306 AF which will be returned to the aquifer via a 148-foot-deep injection well. The extraction well is located in the NENW of Section 33, T13N, R19W, Missoula County and the injection well is located in the NENENW of Section 33, T13N, R19W, Missoula County. The place of use is in the NENW of Section 33, T13N, R19W, Missoula County. The period of diversion and use will be from April 1 through October 30, annually.

The application will be subject to the following conditions, limitations or restrictions.

1) **WATER MEASUREMENT RECORDS REQUIRED:**

The appropriator shall install a department approved in-line flow meter at a point in the delivery line approved by the department. Water must not be diverted until the required measuring device is in place and operating. On a form provided by the department, the appropriator shall keep a written monthly record of the flow rate and volume of all water diverted, including the period of time. Records shall be submitted by January 31 of each year and upon request at other times during the year until the beneficial water use permit is perfected and the department receives a project completion notice. In the event that authorized flow rates and/or volumes have been exceeded during perfection of the permit or the appropriator fails to submit annual reports, the department may continue to require annual submissions of monthly flow rate and volume records. Failure to submit reports may be cause for revocation of a permit or change. Records must be sent to the Water Resources Regional Office. The appropriator shall maintain the measuring device, so it always operates properly and measures flow rate and volume accurately.

NOTICE

This Department will provide public notice of this Application and the Department's Preliminary Determination to Grant pursuant to §§ 85-2-307, MCA. The Department will set a deadline for objections to this Application pursuant to §§ 85-2-307, and -308, MCA. If this Application receives no valid objection or all valid objections are unconditionally withdrawn, the Department will grant this Application as herein approved. If this Application receives a valid objection, the application and objection will proceed to a contested case proceeding pursuant to Title 2 Chapter 4 Part 6, MCA, and § 85-2-309, MCA. If valid objections to an application are received and withdrawn with stipulated conditions and the department preliminarily determined to grant the permit or change in appropriation right, the department will grant the permit or change subject to conditions necessary to satisfy applicable criteria.

DATED this 12 day of October 2021.

/Original signed by Jim Nave/
Jim Nave, Regional Manager
Missoula Regional Office
Department of Natural Resources and Conservation

CERTIFICATE OF SERVICE

This certifies that a true and correct copy of the PRELIMINARY DETERMINATION TO GRANT was served upon all parties listed below on this 12th day of October 2021, by first class United States mail.

MISSOULA COUNTY PUBLIC SCHOOLS
SENTINEL HIGH SCHOOL
C/O BURLEY MCWILLIAMS
909 SOUTH AVE. WEST
MISSOULA, MT 59801

WGM GROUP
1111 E. BROADWAY
MISSOULA, MT 59802
ATTN: EMILY CLARK

/Original signed by Kathy Schubert/ — October 12, 2021
NAME — DATE